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# APPENDIX

TO

# PETERS' NOTES

ON

# ASIATIC CHOLERA.

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# NOTES

ON THE

# ORIGIN, NATURE, PREVENTION, AND TREATMENT

OF

# ASIATIC CHOLERA.

By JOHN C. PETERS, M. D.

SECOND EDITION, WITH AN APPENDIX.

SURGEON GEN'L'S OFFICE
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New York:
D. VAN NOSTRAND, 192 BROADWAY.
1867.

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D. VAN NOSTRAND,

in the Clerk's office of the District Court of the United States, for the Southern District of New York.

# NOTICES OF THE PRESS.

(*From the Chicago Medical Journal, Oct.*, 1866.)

"We have read this monograph with much pleasure. An agreeable style does wonders for a dull subject. For the first time we have been interested by the chapter which forms the dreary introduction to all other books on cholera—the chapter which is devoted to the history of the origin of the disease. Thanks to Dr. Peters, we have waded through the filth of Bigginugar, Ramieseveram, of Jessore, Mysore, Conjeiveram, and the feast of Kuibar Bariam without losing all stomach for the remainder of the book. This we consider a victory of no small importance to the author. The chapter on the course and distribution of cholera presents an array of facts and arguments in proof of the portability and communicability of the germs of cholera which may be considered as decisive. It will be difficult for any one hereafter to entertain the miasmatic or atmospheric wave theory of the causation of the disease. It appears certain that the victim of cholera throws off, probably through the medium of the intestinal dejections, innumerable germs which are transported in a manner analogous to the distribution of the seeds of plants. The causes which favor the germination and reproduction of the one class of germs, are strictly analogous to those favorable to the growth of the other. *The experience of our own community during the present visitation of cholera, fully illustrates this proposition.* Warmth, moisture, filth, and physical

predisposition afford the soil upon which cholera flourishes and spreads. When these elements are withdrawn the prevalence of the disease is reduced to a minimum, and it becomes extinct, precisely as the seed of the sower springs not up when cast upon the dry and stony rock.

"The section on treatment is little more than a catalogue of the various remedies which have been used by all classes of doctors—homœopathic included. Having enjoyed peculiar advantages for the observation of every variety of treatment—the homœopathic included—the author is enabled to speak with authority. Dr. Peters gives the preference to iron-alum, and sulphate of iron. The book is beautifully printed on tinted paper, and forms a work which does credit to all who have been concerned in its production."

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(*From the Boston Medical and Surgical Journal, Nov.* 8, 1866.)

"Cholera is discussed in this the last, and perhaps the best, of the many volumes published this year upon this subject.

"The reader will find this volume very interesting throughout, and *the chapter on treatment is particularly instructive.*"

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"The opinions which Dr. Peters adopts are not different from those maintained by many experienced physicians of the times; but it is safe to say that no book which has been published in this country, and so far as we know in Europe, contains either so complete a history of cholera, or so thorough an analysis of its manifestations in all parts of the world. To professional men it cannot but be of the highest value; while to the general public a careful reading of a sensible work like this must be benefi-

cial. It is a small volume and should be widely circulated."—*Boston Journal.*

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"We suppose that we are warranted in congratulating the public on its escape from cholera—for the present. But it is a long-lived, a persevering, and a pertinacious scourge. It may have spared us only for a season—or for this season. Another year may find it less favorably disposed toward us, for it is as capricious as it is persistent in its course and operations; and therefore it behooves us to obtain as much and as accurate knowledge of it as we can acquire. Dr. Peters's treatise is the best which has fallen under our notice. In a comparatively small compass he has massed all the facts that bear upon the nature, origin, progress, and history of the disease. How much has been done, and how it has been done, and what should be done to reduce cholera to a tame disease, can be learnt from the calm but strong pages of this treatise, which has quite exhausted the subject. A more invigorating book it would not be possible to name, for its arguments and statements remove fear by the process of actual demonstration; and fear is cholera's chief feeder. Dr. Peters's treatise deserves the most extensive circulation, and means should be taken to make it universally known."—*Boston Post.*

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(*From the St. Louis Medical and Surgical Journal, September and October*, 1866.)

"Dr. Peters's work is one of the best on our list, for its material has been collected with diligence and care. Much space is devoted to the origin and mode of distribution; while the theory of its portability by persons, ships, clothing, and baggage, and

by water, dust, etc., is fully carried out. *The chapter on the prevention of cholera, and that on the management of patients and nurses, are the most commendable;* they are very correct and efficient in our opinion. The materia medica of cholera is very complete, and therefore very useful to any one desirous of studying the resources of the physician against this dire disease. The length of our notice bears testimony that we have not found it void of worth and useful information.

"It remains to pay our tribute to the publisher, who has left us nothing to criticise in the appearance of the book. Its clear type and general neatness make us express a warm desire to see Mr. Van Nostrand engage more extensively in medical publication."

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"Dr. Peters, as is usual with him, claims but little more than the credit of a compiler, which we think is much less than his due, for we have met with more original matter in his book than in many works of greater pretension. We agree with the reviewer of a former work of Dr. Peters, that if the value of a work may be in some sort predicated by the modesty of an author who would make no claim for himself, nor challenge our profound regard by a flourish of trumpets—and it is not often a bad index—we are in duty bound to award him the full benefit of that short but admirable commendation of Horace:

"'Non fumum exfulgere, sed ex fumo dare lucem.'

"This man gives us not smoke from flames, but from smoke produces splendor! The internal evidence of the work proves it to be valuable to the oldest and most experienced physician. Indeed, it is a most valuable compendium of practical information selected from the very best authorities. Such a compila-

tion affords the best evidence that its author possesses much more than a theoretical acquaintance with his subject. It is the work of a practical man who understands what practical men require."

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"Dr. Peters discusses the origin, nature, prevention, and treatment of cholera in a thorough and systematic manner. He establishes many facts in reference to the cause of the disease and the means by which it is transported and communicated. In his plan of treatment *he is decided*, although he recites many other and varied methods of treatment, and endeavors to estimate them at their true value. The book is an interesting one, and will be of much use to the general public by the information which it contains as to the means of guarding against cholera."

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(*From the New York Journal of Medicine, Nov.*, 1866.)

Dr. Peters's treatise is an exquisite specimen of type, paper, and binding. It is an unpretending little volume, condensing within moderate limits and in a very readable way the current cholera literature, and those who have neither time nor inclination to consult the originals will find in this work a very reliable digest. The views of the author with regard to the propagation of cholera are substantially endorsed in the report of the Cholera Commission at its recent session at Constantinople. The influence of clothing and articles in common use in the transmission of cholera is strongly stated by the author, though here again he is backed by the Commission. We agree with Dr. Peters in attaching much importance to the infection of drinking water by the choleraic evacuations as at least a precipitating cause. The

work is excellent in its way and creditable to all concerned in its production.

"We are particularly impressed with the catholicity and candor of this, the more noteworthy as not being common in medical literature. Dr. Peters's physiological theory seems more sound than any that has yet been brought forward."

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"We have read this book with very great pleasure. As one reads on, its interest and power takes away all thought of words except as a vehicle of thought, and produces an absorbing interest which is rarely felt, especially in a medical book. It and Baker's work on the Nile have been the most striking recent instances of the power of mind—intent upon one object, and itself seeing that clearly—to infuse the same spirit into the reader."

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"This volume bears witness to faithful and careful observation on the part of its author. Industry, accuracy, and an almost marvellous prevision of the nature and course of this dire disease, are evidenced in every part of it. His statements of the possible prevention of the disease as an epidemic by hygienic and sanitary municipal regulations have been happily verified by this season's experience in New York, as contrasted with the far greater mortality from cholera in smaller cities in the central portion of the country, especially Cincinnati, Chicago, St. Louis, Nashville, etc., to which it was doubtless conveyed from New York."

# SECOND PREFACE.

It is a source of great gratification to me that every chapter of the first issue has been selected by some different reviewer for special commendation; and it is hoped that all essential deficiencies are now supplied in the Appendix.

The true nature of the cholera poison has, in all likelihood, been discovered during the past year. (See page 163.)

The prevention of cholera is already so well understood, that the disease must, sooner or later, become extinct; and it is not improbable that Europe and America have already experienced its last epidemic visitation. (See page 179.)

The distribution of cholera by drinking water, and the conveyance of the disease around the world by means of ships, persons, and clothing, may be considered positively proven. (See pages 168 and 171.)

In the first issue all other pathological appearances were intentionally omitted, except those of the intestinal

villi and glands, for the express purpose of directing special attention to them. (See pages 83, 84, and 183.)

As the object of the prescriptions given on pages 111 to 119 was to meet, not only cholera, but most of the allied diseases which occur in the Summer season and in cholera times, they will not be found too numerous, nor the selection difficult for any one who has a passable knowledge of these diseases and their remedies.

The opinions of Drs. Budd, Petenkofer, Niemeyer and others, given on pages 5 and 6, which it seems were formularized by Dr. Simon, require no alteration.

I have received much assistance in the composition of this work from Dr. F. G. Snelling, of New York, to whom my best thanks are due.

# APPENDIX.

## 1.—NATURE OF THE CHOLERA POISON.

The celebrated M. Robin and his assistants at the Histological Laboratory of the Ecole de Medecine at Paris, have succeeded in producing cholera in dogs, by injecting the serum of the blood and the rice-water dejections of cholera patients into the veins, cellular tissue, and windpipes of these and other animals.

If the rice-water discharges were recent, clear, and without color, and if the serum of the blood used for these injections was drawn during the collapse and algic period, the induced cholera symptoms were very marked; for vomiting occurred in twenty minutes, followed by diarrhœa, the expulsion of epithelial debris, coldness of the extremities, labored and anxious respiration, suspension of the urinary secretion, and by albuminuria.

The introduction of a large quantity of these substances into the stomachs of dogs also caused the same symptoms.

Richardson found that the poison of cholera escapes from the infected person in the form of watery vapor, and justly regards this as a discovery of the greatest importance; for when the temperature of the air is low, the fluid excreta condense on the body and on the clothing of the cholera

subject, and the poison is confined and limited in its effects. But, when the temperature is high, the miasm is readily disseminated into the air. This is the reason why cholera always spreads most easily when the temperature is somewhat high, and in crowded places; and if these rooms and places be also filthy, the whole foul air may be converted into a cholera atmosphere. The great importance of free ventilation is thus proven, and still more so from the experiments of Legros and Goujon, who were enabled, by means of an apparatus containing ice and salt, to condense the air of some crowded cholera wards in the Parisian hospitals, and thus procure a liquid which caused symptoms similar to those of cholera, when injected into the air-tubes of dogs.

The discovery of this cholera poison or fluid, in the air of cholera hospitals, brings this disease more clearly in alliance with the infectious and contagious diseases. We know that not only the breath, but the dried perspiration, tears, nasal discharges, and even the furfuraceous scales from measles patients are saturated with the exhalations of the disease, and may convey measles to others. In scarlet fever the breath, pharyngeal and nasal excretions, and the larger and smaller scales of epidermis, may spread the disease about. In whooping-cough the breath and dried expectoration which has clung to the dresses of patients and attendants may be the means of carrying the disease abroad. In small-pox the dried crusts and scabs which cling to the head and linger in the hair, may retain the disease for months. The clothes of all these patients and of cholera subjects, saturated as they are with the dried perspiration or fouler discharges, may retain the poison for long periods of time.

This cholera liquid is comparable in its action to that of an

overdose of croton oil; at least Dr. Greenhow has seen a case in which an overdose of croton oil was given accidentally, and in the short space of two hours the patient had all the appearance of a person in the cold stage of cholera. There were very profuse watery purgings exactly resembling the rice-water stools of cholera patients; the surface was cold, the features shrunken, the fingers shrivelled, the skin *even more blue* than is usual in cases of true cholera, and the pulse thready, and almost imperceptible; the patient had severe cramps, was very restless, and her respiration gasping. Her intellect was unimpaired, and she died in ten hours.

Orfila gives another instance in which there was a general collapse, such as is observed in malignant cholera, with profuse diarrhœa, and death in four hours.

The great similarity of the action of Tartar emetic and Elaterium to that of cholera, has been fully worked out on pages 139 and 140.

## 2.—RELATIONS OF DIARRHŒA AND CHOLERA.

Prior to the onset of the epidemic in Malta in 1865, there was no prevalence of bowel complaint, either among the military or civil populations. Of the diarrhœa which prevailed during the epidemic, Drs. Adams and Welch describe three varieties. (See English Army Medical Reports, vol. vi.)

1st. The common ordinary summer diarrhœa: characterized by pains in the stomach, foul coated tongue, numerous bilious stools. This was very tractable in its nature, and was caused by hot weather, spoiled fruit, irregular habits, and drunkenness.

2d. There was a diarrhœa not previously existing, character-

ized by painless watery purging, and often accompanied by vomiting of the same character; clear or white furred tongue, depression of countenance, dark rim under the eyes, and exhaustion. It occurred in every degree of intensity, and when severe was classed under "choleraic diarrhœa." But, although intractable, *it evinced no tendency to pass beyond a certain point or assume a more malignant form.* It was very frequent both during the height and decline of the epidemic. Drs. Adams and Welch repeat that this second variety showed no tendency to pass beyond a certain point, if not stopped.

3d. There was a diarrhœa, an intensification of the second kind, and *so completely intractable*, that in sixty-one cases, where every possible attempt was made to check it, *in none did it succeed*, but was invariably followed by full development of cholera—in fact, it was the diarrhœa stage. It must be clearly stated that during no period of the epidemic was the "premonitory diarrhœa tending towards cholera, but easily checked," met with. The second variety showed no tendency to run into true cholera. In its severe form, the third variety was clearly a stage of the disease; and it may be fairly questioned whether a single case was prevented from developing itself into cholera by treatment directed towards the suppression of the intestinal flux.

It is well, however, to treat all minor bowel complaints so as to get any suspicious case under observation and treatment as quickly as possible.

Barlow, of Guy's Hospital, says that the English or summer cholera occurs in most summers, to a greater or less extent, and in greater or less degrees of intensity. In some cases it is a matter of very little moment; in others, the diarrhœa goes on to an extent that is exhausting to the patient; and,

in some few cases, we meet with thirst, suppression of urine, cramps, lividity and collapse, and, in short, the condition of the patient so closely resembles that of one passing into the collapse of true Asiatic cholera, that *it is impossible for any one*, by mere examination of the patient, to distinguish it; the only guide being the character of the prevailing epidemic. Barlow has more than once seen cases of this kind, of which he has said: "If Asiatic cholera were now prevalent, there would be hardly a chance of the recovery of this patient; but, as it is not, I hope, and even expect, that he will do well." And such has been the case in every instance which Barlow has seen, with the exception of aged and diseased persons. The only difference is that the collapse is not so profound as in the epidemic form of the disease, and the rice-water dejections not quite so copious.

In the times of Shakespeare, and even later, English cholera was much more common than now. Then the floors were of earth only; broom and brush were used but little; garbage was thrown down without care, as now in Abyssinia, and allowed to lie and rot till it became so vile that the device was invented of covering it with straw, so that it might be trodden down, as cattle make manure in straw-yards. Finally, when the earth of the floor became over-weighted with putrid matter, the formation of nitre or saltpetre began, and oxygen accumulated rapidly, rendering these houses habitable in a way. On the discovery of gunpowder, the Government sent Petre men to obtain this saltpetre by force. They entered houses without pity, for villanous saltpetre.

Septic cholera can often be distinguished only with difficulty from the Asiatic cases. (See pages 72 and 73.) In Boston a large number occurred in one district, in the immediate

vicinity or directly in the midst of a large sunken area, which was nothing more or less than a pestiferous quagmire, receiving a large part of the drainage of the surrounding vicinity, and the filth of many tenements occupied by the lower classes.

Sir Henry Cooper says the diarrhœa premonitory of cholera is not distinguishable in its history or symptoms from sporadic or ordinary diarrhœa, until all the natural pre-accumulated fæcal contents of the bowels have been evacuated, and the characteristic stools begin to appear.

Carroll, of Cincinnati, says it is often difficult to distinguish between common diarrhœa and the first stage of cholera. If the patient has been exposed to the cholera influence; if the evacuations are lighter in color—resembling dirty water, or soap suds; if they are painless, copious, or debilitating, and occur without imprudence in diet, exposure to cold, etc., he thinks he has to deal with cholera, especially if there is slight blueness of the face and fingers, some coldness of the tongue and breath, as well as of the ears and hands; slight clammy perspiration, and slowness of the pulse.

### 3.—DISTRIBUTION BY WATER.

Dr. Norman Cheevers, of Calcutta, has given attention to the influence of *impure water* in the development of cholera at the presumed chief focus of the disease, viz., the delta of the Ganges. He shows that the night-soil of Calcutta is deposited in the Hooghly, at mid-stream, at the rate of one hundred and eighty tons a day, and that the river water from two to thirteen miles up the stream is unfit for human consumption. Yet this filthy river water is drunk by sailors in ships moored in the neighborhood. In addition, twenty-two sewers open directly upon the commencement of a soft

muddy bank, on the irregular surface of which much of their contents is retained; and in February, March, April, May, and June, the poison of cholera from this source is in active operation. It is also worthy of note that a sewer empties itself close to each of the principal bathing places, as if the sacred stream was not already poisoned enough by the daily Augean deposit of night soil—the bathers are furnished with a special fountain for themselves. This polluted river has been termed, not too emphatically, the "Maelstrom of Death," and Cheevers says it is idle to talk of unripe fruits, bad lemonade, of Jack's imprudence in exposing himself to the sun, and of his drunken habits, for one draught of this "poison water" will be more fatal than all of them combined. This polluted water converts a harbor of refuge into a port of danger. Of three hundred and ninety-two cases of cholera, taken into one hospital, one hundred and eighty-nine, or almost one half, came from ships. Only nine cases came from a mooring where there was a greater crowd of ships than elsewhere, but out of the way of the filth; while ninety-four and sixty-one cases came respectively from the two filthiest mooring spots.

We can now readily understand why, as long as the character of the water was overlooked, the so-called greatest amount of care did not make it possible to prevent frequent outbreaks of cholera in ships going down the Ganges from Calcutta, nor even occasional outbreaks as long as a fortnight after leaving the river.

"In the Crimean campaign," says Dr. Richardson, "the English Black Sea fleet had seven hundred and ten cases of cholera, and three hundred and ninety-seven deaths, and ninety-one per cent. of these were supplied with water derived from springs

at Baltschick, a spot on which French troops had been quartered while suffering from cholera. These troops had washed their clothing at these springs, and the ground for a great distance around was saturated with their excreta. The remaining nine per cent. of the infected were supplied with water partly from Baltschick; at least, of the crews of three vessels which suffered severely, two positively took in water from Baltschick, and the third probably so. In all ships, except one, which were supplied with distilled water, not a case occurred; and in that one, the water was passed through a foul hose."—*London Medical Times and Gazette*, July 28, 1866.

In 1866, the little town of Amiens suffered more severely than any other known place. It was ravaged by the most terrible outbreak of cholera that has ever visited any European city. It raged most in the lower town and old city, carrying off whole families when it once entered a habitation. The backs of the infected houses mostly opened upon the river Somme and its numerous tributaries. There the people were constantly engaged in washing filthy baskets, rinsing linen, throwing out slops, or ladling up water to be carried in-doors. The water is still used for domestic purposes, although it is plain that it is fouled most abundantly by sewage matters, and before the outbreak of cholera it was used for drinking. Police officers have seen the people drinking it often and often.

"In 1832, one thousand cases of cholera occurred in Exeter, England, with three hundred and forty-seven deaths. The water was supplied at that time from the river, and was contaminated. In 1834, the water supply was improved, being drawn from the river two miles above town, and in 1849

there were only forty-four cases, and those chiefly among strangers.

"In Dumfries, Scotland, in 1832 and 1849, the supply of water was both scanty and impure, but then a better supply was obtained, and in 1854 the place was very lightly visited.

"In 1866, six districts in East London were supplied by the East London Company, and every one has been ravaged by cholera; from nine hundred to one thousand cases occurring in one week, whilst the remaining thirty-one districts have been comparatively unharmed.

"A woman lodging at the top of a house in Red Lion street, Wapping, was attacked with cholera; her slops and filth were emptied down the rain-water pipe, which communicated with the water butt below. The other people in the house drank of this water, and five out of nine died of cholera."—*Medical Times and Gazette, Sept.* 11, 1866.

The tenacity with which water retains "cholera stuff" has been established by Dr. Falkland. He has shown that it passes readily through filtering paper, and that water containing one-five-hundredth part of it, is not entirely purified by transmission through animal charcoal.

## 4.—CONVEYANCE OF CHOLERA FROM INDIA TO EUROPE AND AMERICA IN 1865 AND 1866.

From Ranking's Abstract of Medical Sciences, Vol. 44, p. 206, we learn that: "At the beginning of 1865 cholera was epidemic in the Bombay Presidency, and during that year the city of Bombay (although it has not been free from the disease for a single month for the last twenty years) suffered from a severer outbreak than had been experienced since the great

cholera year, 1850." From page 289 (*ibid.*), and also from *London Lancet*, Jan. 19, 1867, we learn that cholera first appeared in the Red Sea in 1865, on board two English ships, the Persia and North-Wind, carrying Eastern or Asiatic pilgrims from Singapore to Jeddah and Mecca. The captains both stated that the passengers and crews caught the disease at Mokulla, on the Arabian coast, where both vessels touched, and that it raged severely among them until they were opposite Leet, about one hundred miles below Jeddah.

As Mokulla trades largely, and perhaps chiefly, with Bombay, the disease may have been brought over from that city both in 1864 and 1865. Still, it is well known that cholera also prevailed in Java and Singapore in 1864 and 1865, and that convalescents from the disease were embarked on board pilgrim ships for Mecca. It may also have been brought from Calcutta, as two native vessels from Bengal, and a third vessel from Singapore, had numerous deaths from diarrhœa (and cholera) among their pilgrim passengers on the voyage to Jeddah.

About May 2, 1865, the cholera broke out violently in Jeddah and Mecca; and on May 21st, the cholera again broke out on the ship Persia, which was now carrying Western or European pilgrims from Mecca to Suez. Both the captain and his wife were attacked.

The *London Medical Times and Gazette* states that cholera reached Alexandria from Suez as early as May 11. By June 2, cases were frequent, and on the 11th there were thirty deaths per day, and on the 17th as many as sixty-one; yet the disease was not officially recognized till June 11, and foul bills of health were only issued to vessels from Alexandria on the 14th of June. Thus the disease was allowed to slip

out into the Mediterranean, and the cholera poison was widely disseminated, and had formed lodgments in Constantinople, Ancona, Malta, Marseilles, and Gibraltar, before the Egyptian sanitary authorities had taken any steps to stop its march.

On page 214 of Ranking's Abstract, Vol. 44, we find a report of the cholera epidemic of 1865, in the Maltese Islands, taken from the Official Medical Reports of the English Army Medical Department, Vol. 6, 1866 (Blue-Book). Army-Surgeons Adams and Welch state: "Towards the end of *May*, and before there was any knowledge of cholera having appeared at Alexandria, numerous pilgrims returning from Mecca had landed at Malta, *without* the imposition of quarantine. About the same time (May), the alarm beginning to spread in Egypt of cholera appearing in the track of the returning pilgrims, many Maltese returned home from Alexandria (without going to Mecca?). A quarantine was not established in Malta against Alexandria until June 14th. But Drs. Adams and Welch, from an attentive consideration of all the facts, are of opinion that Malta was infected by the choleraic poison prior to the commencement of quarantine, and that the poison came first to Malta in the track of the pilgrims and earlier fugitives."

"The facts relating to the appearance of cholera in the island of Gozo (a Maltese island) are very precise. A sailor, who had been serving on board a small vessel in the harbor of Valetta (Malta), returned to his home on the island of Gozo, with all the symptoms of cholera, on July 21st. He was nursed by his two sisters and two other women. All these were attacked on the 24th, and on the 25th another female attendant succumbed. From this last-named date, and *from*

*these cases*, the disease spread among the population of the island."

On page 208, we find that cholera was not officially recognized at Marseilles till July 23, 1865, although it must have arrived there early in June. From the *London Lancet*, January 12, 1867, we learn that: "From papers laid before the French Academy by M. Grimaud de Caux, it seems proven beyond all question, that cholera was introduced into France and first appeared in Marseilles subsequently to the arrival of a vessel with pilgrims from Alexandria. It has been asserted that cholera was present in Marseilles previously; but the supposed cases have been most satisfactorily explained away. Thus, much evidence was brought forward in proof of the contagion theory. Grimaud's reply, in full, will be found in the Comptes Rendus, Vol. 73, No. 16."

Marseilles was a great centre for the distribution of cholera in 1865. It was quickly conveyed to Paris, for as many as 16 deaths from cholera occurred in Paris in June; 30 in July; 125 in August; 200 in September; 4,466 in October; 1,218 in November; and 768 in December, 1865.

In October, when there were 144 deaths daily in Paris, the disease was conveyed to Havre, and carried by the passengers of the steamship Atalanta to New York by November 3d. A patient from the Atalanta introduced the disease into Ward's Island Emigrant Hospital, where on and after November 22 there were twenty-seven fatal cases.

From Marseilles the disease was also carried to Toulon. Mr. Calvy says three deaths occurred in a house in a healthy and isolated locality near Toulon, which was free from cholera at the time. A member of this family had attended upon persons who died of cholera in Marseilles.

From Marseilles it was also conveyed to Algiers by pilgrims from Mecca by September 24th. Also to Guadaloupe by a Marseilles ship by October 20th, and 10,806 died in this island out of a population of 149,107.

Cholera reached Odessa by August 6th, and was carried to Altenburg, in the heart of Saxony, in the manner described on page 52 of this treatise, and thus introduced into the Prussian armies, in which it committed great ravages.

### CHOLERA IN SOUTHAMPTON.

On page 209 of Ranking's Abstract, Vol. 44, we learn that Southampton is the English port which maintains the closest and most rapid intercourse with Alexandria, and that it was only (p. 208) in this one port in all England that vessels arrived, in 1865, having had cholera on board shortly before, and in reality having the disease in active operation when they entered the harbor. In this same town occurred, shortly after, the first cases of cholera in England in 1865, viz., sixty cases, with thirty-five deaths. The extension of cholera from Southampton to Epping is noticed on page 51 of this treatise.

This was the first time that cholera reached England by the way of the South, but the disease did not commence to prevail till September, although suspicious vessels arrived in July, and cases of sickness attended with choleraic symptoms occurred in Southampton long before the disease was officially recognized.

Precisely similar events occurred in 1866.

In the *London Medical Times*, July 28, 1866, we read: "Up to June 10, 1866, Southampton had enjoyed a singular immunity

from disease of every kind, and diarrhœa was unknown in the place. On that day the steamship Poona arrived, having lost a man from cholera on the previous day. On the 11th, 12th, and 13th, several cases of diarrhœa occurred among the crew. On the 13th, a child of one of these men died in five hours with cholera, having slept in the same berth with its father, who was sick with severe vomiting and purging; the father died two days after. Then up to July 24th there were one hundred and twenty cases of cholera in Southampton, with sixty-six deaths."

The *London Medical Gazette and Times*, August 4, 1866, says:

"The first decided case of contagious cholera in Liverpool, unconnected with the Helvetia, was that of Mrs. Boyle, in a wretched close court in Bispham street, and the infection was spread in the neighborhood by the orgies of an Irish wake. Seventy-three cases were traced to this one cause."

Dr. Houghton says, in *London Medical Times and Gazette*, February 16, 1867:

"As a matter of fact, the first case of Asiatic cholera in Dublin, in 1866, appeared in the person of a woman named Magee, who imported the disease from Liverpool, on July 26, and carried it with her to the house No. 22 City Quay, where she died, having previously given the disease to a little girl, Mary Anne Mezler, who also died in a short time. The child's father, Andrew Mezler, next died, July 31; his widow sickened August 2d. The cholera thus introduced by Ellen Magee spread rapidly over Dublin, and killed one thousand one hundred and ninety-three persons."

"The disease contracted by Ellen Magee in Liverpool and thence imported into Dublin was in its turn originally im-

ported by the ship Helvetia into Liverpool, by German and Dutch emigrants, and Dr. Houghton has no doubt, if we possessed the requisite knowledge, the disease could be traced backwards in lineal descent to its origin in some poor Hindoo on the banks of the Ganges, as certainly as the pedigree of a horse or dog of repute can be traced to his remote ancestors.".

I think I have almost succeeded in doing this.

Dr. Houghton thinks that, as long as we possess such a history of the introduction of Asiatic cholera, we are justified in rejecting other possible modes of its causation.

The *London Medical Times and Gazette* of Sept. 1, 1866, says: "The spread of cholera from the eastern to other districts of London has taken place so deliberately as to have made it an easy matter to investigate carefully into the history of isolated outbreaks, and a good deal of evidence of the transportation of the disease from infected to non-infected places and houses has been collected, and striking instances of infection are reported."

The *London Lancet*, Feb. 23, 1867, says about the recent outbreak of cholera in Jersey: "The disease is stated to be prevailing in Brittany, near St. Brieux, a port with which Jersey has communication. A French woman died Feb. 6, 1867, and her husband next day. An Irishman who waited on them formed the communication between this house and another, about one-quarter mile off, in which he and another died. A wake was held on these two persons, and ten of the company have since died. One hundred and two cases and thirty-nine deaths have already occurred. All the first cases died quickly, with diarrhœa, vomiting, cramps, and pulselessness. Later, the cases began by choleraic diarrhœa, running

or not into collapse. This is the fourth visitation of cholera in Jersey, viz., in 1832, 1849, 1854, and 1867. There had been no previous prevalence of diarrhœa—the disease dropped on the island without warning."

The history of the introduction of cholera in the County Hospital of Chicago in 1866, as reported by Dr. T. Bevan, is very instructive.

Up to August 6th, no apparent tendency to intestinal troubles beyond an occasional dysentery of some returned soldier with chronic diarrhœa had occurred in the hospital, when a Mormon train abandoned a man named Christian Hansen at the railroad depot; he was taken to the hospital, and died in five hours of cholera. The second and third cases occurred in a nurse and a patient on the 9th; the fourth occupied a bed next No. 1, and sickened on the 10th; the fifth on the 11th; the sixth on the 12th; the seventh, eighth, ninth, tenth, and eleventh cases occurred on the 13th of August; the twelfth, thirteenth, fourteenth, fifteenth, and sixteenth cases on the 14th; the seventeenth and eighteenth cases on the 16th, and the nineteenth and last case on the 17th of August. In addition, the warden of the hospital and the resident physician had distinctly marked choleraic attacks, but recovered. The epidemic lasted fourteen days, and was stayed by isolation of the patients, disinfection of discharges, cleanliness, and free ventilation. Fifty per cent. of the paupers died, and only twenty per cent. of the better class of patients, although the cases among the latter were more violent than among the former; the latter would react and convalesce, while the paupers quickly succumbed.

If the hospitals on Blackwell's Island had been as small, and the inmates as little numerous, the introduction of cholera

into them would not have been as mysterious as it now seems to be. The same holds good of the Brooklyn Penitentiary. (See pages 94 and 106 of this treatise.)

## 5.—PREVENTION OF CHOLERA.

In consequence of the sanitary measures described on page 22 of this treatise three, if not four, festivals at Conjeiveram have passed without an explosion of cholera.

In the Bombay Presidency there are 94 shrines to which pilgrimages are made. In the past year (1866), for the first time, these shrines and the devotees were subjected to sanitary control. The result has been remarkable, for cholera appeared at two only. This renders it probable if this important duty had been commenced in 1865, as at Conjeiveram, the disease would not have been conveyed from Bombay to Mokulla, and the epidemics of 1865 and 1866 would have been prevented from reaching Europe.

At Mecca the same sort of scavengering, burial of excreta and all organic refuse, was only commenced in 1866, but now will always be carried out. The great importance of this at Mecca is evident from Burton's account. He says: "At the feast of sacrifices the surface of the valley soon came to resemble the dirtiest of slaughter-houses, and in a few days, literally, the land stank. In addition the heat of Mecca is so great that clothing is unendurable during the middle of the day, for the city is so compacted together by hills that even the Simoom can scarcely sweep it. The heat, reverberated by the bare rocks, is intense and occasions great lassitude of body and mind."

The strictest quarantine and the most rigid and sanitary

regulations are necessary at Alexandria, Marseilles, Southampton, and New York.

As regards the disinfection of cholera discharges Pettenkofer's directions are the best. He says:

"The dejections of cholera patients, in their recent state, are generally either neutral or feebly alkaline. But after a lapse of a short time they become *decidedly alkaline*, and means should be taken to render and retain both the urine and fæces acid, and thus prevent alkaline or ammoniacal decomposition. This is easily done, for some metallic salts, mineral acids, and carbolic acid will preserve the urine and fæces in an acid condition for months. *Sulphate of iron* is the best on account of its efficiency, cheapness, and ready accessibility. For the disinfection of cesspools and out-door privies where urinary and fæcal discharges have accumulated in large quantities, and have already undergone alkaline or ammoniacal decomposition, the sulphate of iron or copperas must be added, in a concentrated solution, until the odor of ammonia and of sulphuretted hydrogen is completely removed, and the contents of the pit have an acid reaction after stirring. Then we may rest assured that ammoniacal decomposition will be delayed for months, although some other innocuous changes and some unpleasant fetor may arise. The offensive odor cannot all be removed by any known means, and can only be concealed by stronger penetrating odors; still, carbolic acid conceals the fetor of excrement completely, whilst its own smell, when diluted, is very bearable and even decidedly healthy. It also prevents ammoniacal decomposition. If one part of carbolic acid be dissolved in twenty parts of water, half a pint will be sufficient for the daily excreta of four persons, and will keep

them acid. About one ounce of copperas is required for the recent excrement of each person daily.

The disinfection of cholera-air has been discussed on pages 103 and 104. But some practical men think that cloths or towels soaked in a solution of permanganate of potash and waved about the sick-room is the best expedient. Still, Dr. Clemens prefers a spirit of chlorate of copper as a cholera-air disinfectant. Take of liq. cupri perchlorati concent. ʒij.; chloroformi ʒj.; spir. vini ℥vj.; put some in a common glass spirit lamp. When the wick is lighted a vapor of chlorate of copper is formed, which in five minutes will pervade a chamber of 5,000 cubic feet so completely that all objects contained therein will be impregnated. In this way both the air and all other matters will be quickly disinfected, and that without danger, for it is claimed that even children do not suffer the slightest injury from this vapor.

The good effect of these preventive measures were abundantly proved in the experience of New York during the last epidemic. In New York city proper there were but 600 deaths from cholera last year, while in St. Louis there were no less than 3,527. Much credit is due to our efficient quarantine health officers; for in 1832 only 23 cases of cholera were received into the quarantine hospital, yet there were 3,572 deaths in the city; in 1849 there were 230 cases in quarantine, and 5,071 deaths in New York; in 1854, 415 cases at quarantine, and 2,509 deaths in the city; in 1866, 608 cases in the lower bay, and only 1,210 deaths in New York, Brooklyn, and in the numerous islands occupied by the extensive charitable, penal, and military establishments.

Of European towns the city of Bristol, England, has given the strongest testimony of the value of prevention and disin-

fection. Bristol is the home of Dr. Budd, who first suggested these procedures. In 1866 cholera was imported over thirty times into Bristol, and was directly traced to infection from other places in which it prevailed epidemically. There were only two instances in which a second case occurred in the same house after it came under the control of the sanitary authorities.

The results in London were also very striking:

From the 7th to 14th of July, 1866, there were 32 deaths in London; in the next week 346. From the 21st to 28th July, there were 904 deaths; in the following week 1,053 deaths occurred from cholera. The mortality had now attained a height that was not reached till two weeks later in 1849, and four weeks later in 1854, and cholera might well have proven a more terrible destroyer than it had ever yet been. But sanitary science fought against it as it had never fought before. In every parish the health officers were supported much better than in former epidemics; house to house visitation was energetically and efficiently carried out; cholera patients were removed to special hospitals; disinfection of all drains and sewers and of infected houses, bedding, and clothing was rigorously insisted upon; the still healthy were removed from infected houses, the water supply was looked to, and private charity came nobly forward. In the very next week the deaths from cholera fell from 1,053 to 781, and by the first week of September, which was the most fatal week in the two previous epidemics, the deaths were only 132. In 1849, 14,137 died in London; in 1854, 10,738; in 1866, only 5,548, of which 3,909 occurred in the Eastern district, and only 1,639 in all the rest of London.

The East London Company's water supply caused the increased deaths in East London, viz., from thirty-two to forty fold greater than either in the West, Central, North or South of London, and afforded another instance of the cholera-conveying power of water, and again proved that water is one of the greatest agents in diffusing cholera.

## 6.—PATHOLOGY.

It has been said that no disease presents more uniformity in respect to its morbid anatomy than cholera. But, unfortunately, the secondary phenomena, viz., those of congestion, are so much more prominent, that the real disease, that of the intestinal villi, has generally been overlooked.

The small intestines are generally well filled with a considerable quantity of pale, nearly colorless gruel, or rice, or cream-like matter, which Beale and others have proven to consist almost entirely of columnar epithelium, which has been stripped from the villi, so that all, or nearly all of them are left bare. The surface of the intestine is converted into a raw surface, comparable to that produced by an extensive and severe scald or burn, and the villi are so damaged that they can no longer act as organs of absorption.

Lionel Beale says it is probable that in bad cases almost every villus, from the pylorus to the ileo-cæcal valve, has been stripped of its epithelial coating during life. These important organs, the villi, are, in very bad cases, all or nearly all left bare, and a very essential part of what constitutes *the absorbing apparatus is completely destroyed.*

It is probable that the extent of this process of denudation determines the severity or mildness of an attack of

cholera. If the great majority of the villi have been stripped, it is scarcely reasonable to consider recovery more probable than it would be after a very extensive burn or scald.

Dr. Bartholow, of Cincinnati, says it is obvious that this destruction of the columnar epithelium not only arrests the vital power of selection and absorption naturally possessed by the villi, but produces an outward diffusive current of serum from the intestinal capillaries, followed by an extraordinary amount of congestion of the veins of the bowels.

Beale says the capillaries are distended to three or four times their ordinary diameter, so that the smallest vessels are injected very easily, and a very rapid transudation of fluid through the capillary walls can easily be made to take place after death.

The glandular apparatus of the small and large intestines becomes the seat of equally striking changes. The solitary glands enlarge, become filled with a milky fluid. The plates of Peyer become prominent, and the mesenteric glands also enlarge somewhat.

Not only is a great outpouring of serum from the intestinal capillaries thus induced, but the digestive process is arrested; no fæces are formed, although bile is still produced, and may be present at times in the discharges.

The arrest of primary assimilation, and the rapid loss of serum, soon occasion serious changes in the blood. It becomes viscid and dark. The red globules in the portal vein are irregular in outline, and broken up; the serum is crowded with debris and granular matter. The blood globules in the capillaries, small veins of the villi, and submucous tissue of the bowels, appear to have been in a great measure destroyed, and in their place are seen clots contain-

ing blood-coloring matter, minute granules, and small masses of germinal matter evidently undergoing active multiplication.

Similar appearances are found in the air-tubes, for Mr. Besnier has found throughout the entire extent of the bronchial mucous membrane a deposit of reddish viscous matter, forming a kind of jelly on the surface. The quantity is variable, but it often formed a layer sufficiently thick to block markedly the bronchial tubes. It was detached with difficulty by a very strong current of water, and was more abundant in the smaller bronchial tubes. The deposit was evidently formed of the epithelial cells of the bronchial mucous membrane, which, though rare in the normal state, become very abundant and voluminous in cholera.

Below the epithelial deposit, the bronchial mucous membrane presented an intense uniform redness.

When the cholera asphyxia occurred rapidly, there was congestion of the inferior lobes of the lungs; but when it was slow and progressive, the pulmonary congestion was slight, but the epithelial deposit abundant and accompanied by an emphysematous condition of the lungs more marked and extensive than in the rapid cases. Besnier contends that the asphyxia of cholera arises from the obstacle opposed by this epithelial deposit to the entry of air into the air cells, and not solely to mere thickening of the blood, or to non-penetration of blood into the pulmonary capillaries.

Bartholow, of Cincinnati, found the pleura, sac of pericardium and peritonæum, coated with a gummy substance which adhered tenaciously to the hands, and so glued the pulmonary and costal pleura together, as to require, in some instances, no inconsiderable force to separate them, and which must have increased the difficulty of respiration. This sub-

stance was found to consist of cast-off epithelium, and of the lubricating serum deprived of much of its water.

## 7.—TREATMENT OF CHOLERA.

Internal disinfection is the most important part of the treatment of cholera. This may be readily and pleasantly done by using a small quantity of *permanganate of potash* in water as a common drink. *Carbolic acid* has been used, very dilute, as a drink, and in starch injections, in five slight and seven severe cases, with only three deaths. I have seen cases recover under the use of sulphate of iron, and think that the directions on page 110, prescription No. 32, on page 115, and Nos. 1, 2, 3, 4, 5, 14, 26, and 27, on pages 116, 117, and 119, are well worth attention and trial. Injections of a strong hot solution of sulphate of iron will doubtless be found more useful than those of green tea, but they will almost indelibly stain the clothing.

The next indications of treatment are to prevent the destruction of the columnar epithelium, arrest the outward diffusion current through the intestinal canal, and obviate the retention in the blood of the effete and poisonous substances which should be eliminated by the kidneys.

Beale truly says: The removal of the columnar epithelium from the villi, and the consequent destruction of the mechanism of absorption, are broad facts in cholera which deserve our first attention. We must well consider how this denudation may be prevented, lessened, or retarded; and when it has taken place, what medicines or substances should be brought in contact with the raw and naked intestinal mucous membrane, to soothe or heal it. In preference to using any

harsh measures, Beale thinks it better to let the denuded villi remain perfectly quiet in the hope that the damage may be repaired by nature.

Guided by these suggestions, Dr. Clarke, of the London Hospital, treated fifty-six cases with colored sweetened water, with twenty-eight deaths. On board the hospital ship Belle-isle, near London, twenty-eight slight and nine severe cases were treated with nothing, with only one death. Flaxseed tea, white of eggs, mucilage of gum-arabic, glycerine, and sweet oil and lime water, have been suggested for the simple treatment of cholera.

Dr. Bartholow, of Cincinnati, found all the discharges in cholera to have an *alkaline* reaction, and to consist of a serous fluid, almost identical with the serum of the blood, merely mixed with columnar epithelium and debris. The perspiration was feebly alkaline or neutral. The urine rapidly diminished in acidity, and finally became alkaline. Hence it has been inferred that *acids* should form a principal part of the treatment of cholera. Prescriptions No. 22, page 114; No. 6, page 117; and Nos. 23 and 24, p. 119, deserve trial in cases which resist the internal disinfectant treatment. *Sulphuric acid* stops diarrhœa and relieves pain. It is suited to atonic and pale serous diarrhœa in every stage, and often acts like a charm.

Its action in cholera is explained thus: The contents of healthy bowels are naturally acid; but in true choleraic diarrhœa the alkaline serum of the blood is poured out so copiously into the intestines as to render their contents no longer acid. Acids not only restore the natural acidity of the bowels, but cause the endosmatic current, which is always

towards the alkaline side, to return to its proper course, and thus reëstablish the function of absorption.

I prefer diluted phosphoric acid, either plain or given in gum-water, orgeat, or in syrup of gum arabic, and flavored or not with syrup of lemons or raspberries. There is, at least, no danger of injury to the teeth, as there always is when using the other mineral acids.

When the vomiting is excessive, one-grain doses of oxalate of cerium have been found useful.

The urine is very scanty in the first and second stages of cholera, and suppressed in all cases of collapse, so that a direct ratio exists between the severity of the case and the amount of the urinary secretion. Albumen, epithelium, and tube casts appear early in the urine, and increase rapidly in quantity. These appearances are manifest in the very inception of the diarrhœal stage, and are of great importance, both in a diagnostic and therapeutical point of view. Hence, at one stage of cholera, the treatment is resolved into that of Bright's disease, and bromide of potash is the best remedy.

Dr. Bigbie, physician to the Queen in Scotland, has also used bromide of potash with some success, especially against the cramps, in thirty-grain doses, every half or one hour, till one and a half or two ounces were taken. He says it will arrest the cramps and restlessness as few other remedies can; relieves capillary obstruction, brings on reaction, and speedy return of secretion of urine. It is a perfectly safe remedy.

In the later stages of the disease, when the system has sunk into a complete torpor, more active diuretics have been used with success. (See page 151, and prescriptions Nos. 10, 11, 12, and 13, page 117.)

Dr. Bevan, of Chicago, deserves great credit for the bold

but careful use of hypodermic injections of morphine and atropine, which he instituted. Of the former he used from one-sixth to one-fourth, and even one-third grain per time. It often moderated the cramps immediately, and lessened the vomiting and diarrhœa. In terrific cramps, one-third grain injections of morphine and inhalations of chloroform were found useless, but when one-thirtieth of a grain of atropine was added, relief ensued in half an hour, and lasted for nearly twenty hours. Then injections of one-fiftieth of a grain of atropine, with one-quarter grain of morphine, produced comfortable sleep, and ultimate recovery.

As simple non-absorption of water is said to produce all the symptoms of collapse, the directions on page 122 should be followed.

Artificial serum, composed of water, white of eggs, and table salt, has been largely used as a common drink to replace the immense quantity of blood-serum which is lost in the cholera discharges. Dr. Clark, of the London Hospital, has suggested a more complex and scientific artificial serum, viz.: Carbonate of soda, twelve grains; phosphate of soda, one grain; phosphate of lime, one grain; phosphate of magnesia, one-half grain; water, eight ounces. This mixture was supplied to his patients in large bottles, with pieces of lemon floating in it. They liked it, and drank it freely, as a common drink, and only six cases out of eighteen died.

Richardson thinks that the food and drink may also be made the means of introducing heat abundantly into the interior of the system, in the algid stage of cholera. Dissolve with gentle heat, two ounces each of stearine and best fresh butter; beat up well eight ounces of whites and yolks of eggs with twenty grains of carbonate of soda, and eighty grains

of best fine table salt. Then mix the whole together at a temperature not above one hundred and forty degrees.

Let the whole cool to a soft consistency; then spread it on a board or slab and rub in two ounces of water with a broad spatula. Place the whole in a broad-mouthed jar.

For use in cholera, put one table-spoonful of this mass in a large breakfast cup and rub it up equally with a tea-spoonful of glycerine, or water, or fine sugar and water, or honey and water; then pour on three ounces of actually boiling water, and mix well. This mixture will cool at once, and the thermometer will only register one hundred and thirty degrees to one hundred and thirty-five degrees of heat; proving that forty-four degrees have been rendered latent for every ounce of fluid. This will be given up to the tissues when it reaches them. A pint of this fluid will render up no less than two hundred and four degrees of heat.

It is agreeable to taste, and sets well on stomach. Opium, creosote, dilute sulphuric acid, or port wine and other medicines, have been given in it.

It is to be hoped that these complicated mixtures will prove more useful than the simpler ones directed on pages 122 to 125.

The simple treatment of collapse has been found the most efficacious. (See pages 124 and 125.)

In collapse, Dr. Carroll, of Cincinnati, says, all the blood which sustains life is confined to the brain, chest, and abdomen. After the patient has lost twelve or fifteen pounds of fluid, the remainder accumulates in the great centres of the body, and if you attempt to produce reaction too suddenly and diffuse this quantity, already too small, too quickly throughout the general system, the result will be disastrous.

The heart is already feeble and contracts on a small amount of blood, only sufficient to keep up its pulsation; the brain' too, has barely an adequate quantity to prevent fatal exhaustion; withdraw this little too quickly, and the patient will die suddenly.

Hence use light, instead of very heavy and warm coverings. Give one teaspoonful of brandy in two of water or gum-water, five or ten minutes. For if you suddenly produce excessive external heat, the heart and nervous system are left so deserted that they will fail rapidly. Free ventilation should be secured; the windows should all be open; nothing should be said or done to discourage the patient; moderate friction only should be used; no heating substances should be applied externally for six or ten hours after collapse has been ushered in; then apply gentle heat only, by means of hot water in bottles, hot sand-bags for the purpose of gradually increasing the temperature of the extremities. In cool weather have fire in the room, but leave the windows open. Of twenty-nine cases of collapse, thus treated, nineteen rallied into the stage of reaction; and of these nineteen, twelve recovered.

Warm baths at ninety-eight to one hundred and four degrees were used in one hundred and thirty of Clarke's worst cases. The cramps ceased, anxiety of mind vanished, the pulse rallied, pain was relieved, and in some a tranquil slumber ensued. But the improvement was permanent in but few cases, and only transient in many. (See page 133.)

Richardson thinks that in collapse the homogeneousness of the blood can only be restored by direct injection into the veins of a proper fluid. To make this, dissolve one drachm of table-salt and one scruple of carb. soda in five ounces of water; whip up four ounces of white of eggs well and add

them to the water; heat the mixture in a water bath to one hundred and thirty degrees; stir steadily, digest for one hour, and remove from the fire. This forms a perfect artificial serum, the albumen of which hydrates freely.

Next melt one ounce of clarified animal fat and two ounces of pure glycerine in a crucible and pour it into the artificial serum at a temperature of one hundred and twenty degrees, and stir in carefully; let it cool to eighty degrees, skim off the floating fat and filter the remainder through coarse paper or close cloth.

The fluid thus obtained is of a pinkish color, alkaline reaction, saline sweetish taste, of specific gravity of 1.038; it picks up semi-fluid blood with instant readiness and diffuses it most equally. Two pints may be injected at one time at a temperature of one hundred and six degrees, when it will take up one-third more heat than water, and on cooling restore one-third more. A small quantity of alcohol increases the efficiency of these injections.

A more simple fluid for injection into the veins is: distilled water, twenty ounces; chloride of sodium, ʒi; carb. soda, twenty grains; chlorate of potash, six grains; phosphate of soda, three grains; pure alcohol, two drachms. Of fifteen cases, eleven died without the addition of alcohol, and four recovered with it.

## 7.—HOMŒOPATHY AND CHOLERA.

It is well known that the hydragogue cathartics, like elaterium, croton oil, jalap, gamboge, etc., are the truly homœopathic remedies for cholera. (See pages 140 and 165.) Yet, singularly enough, the homœopathists rarely or ever use them,

but rely upon infinitesimal doses of more or less antagonistic and allopathic remedies, like camphor, copper, arsenic, etc.

The homœopathic treatment is generally commenced with camphor, which has been used from time immemorial against diarrhœa, ordinary cholera, etc. Leadam says that it was even used by Serapius, who translated Dioscorides into Syriac. But Hahnemann doubtless got the idea from much later sources, for he tells us in his Lesser writings (page 753) that "a receipt has been given to the world which has proved so efficacious against Asiatic cholera, that of ten patients but one died. The chief ingredient is camphor, which is in ten times the proportion of the other ingredients." It is scarcely necessary to add that camphor has little or no homœopathic relation to cholera—certainly not as much as elaterium. Hahnemann and all his followers, also, instinctively avoid the use of infinitesimal or homœopathic doses of camphor, and the former directs strong spirits of camphor to be given at least every five minutes; also to rub some on the neck, head, arms, chest, abdomen, legs, etc.; also a clyster with two teaspoonfuls of spirits of camphor in one half pint of warm water; and, finally, that some camphor should be burned on a hot iron from time to time, so that the patient may inhale its vapors. This is very good treatment, but it is not homœopathic; on the contrary, camphor is an antidote to almost all homœopathic remedies and doses, which may be given subsequently. We have seen, on page 141, that veratrum, the remedy for the second stage, is not as successful as many homœopathists suppose, and it cannot well be in infinitesimal doses after the previous use of large doses of camphor, which antidotes it. The Hahnemannian remedy for the third stage, or that of cramps, when the patient is saturated, and his room and

clothes loaded with the vapors of camphor, is one or two globules of the thirtieth dilution of cuprum, or copper. This is an allopathic astringent, but cannot act as such in infinitesimal doses. Even the use of copper was not original with Hahnemann, for Dupuytren and others had used it previously (see page 145), and he tells us in his Lesser writings (page 755) that "trustworthy information from Hungary informs him that those who wore a plate of copper next the skin escaped the infection." We have shown, on pages 160 and 161, that few or none of the remedies in ordinary use by the homœopathists are homœopathic to cholera, as they do not use elaterium, etc., and it is almost safe to assume that they have never treated a case of cholera truly homœopathically. Hence, as they generally give infinitesimal doses of allopathic remedies, they must necessarily fail. They do not use their own remedies rightly, and a well-instructed regular physician can easily treat his cases, if he chooses, far more homœopathically than the oldest and most experienced homœopathist.

As it is not only easy, but natural to mistake various milder forms of disease for true Asiatic cholera, it is a matter of course that very many homœopathic physicians will rate their success very highly; others much more moderately. Thus two Cincinnati physicians say they treated one thousand one hundred and sixteen genuine cholera patients in 1849, with a loss of only thirty-five, or five and a half per cent.; Rubini, of Naples, five hundred and ninety-two cases (with allopathic doses of camphor), without a single death.

The *British Journal of Homœopathy* (vol. 15, p. 130) says: Dr. Stens makes the rather rash assertion that the homœopathic mortality in cholera is only eight and a half per cent. The British editors add: "Now, we should rejoice very much were

this the case; but, alas! we know from sad experience that it is at least three times as high as here stated. And this is a fact so easily ascertained by reference to the statistics of homœopathists themselves, that we (the British journalists) are surprised Dr. Stens has allowed such a flagrant exaggeration to damage the credibility of his other statements. We know very well the data on which the percentage of mortality he gives is founded, and we are well convinced of their utter untrustworthiness. How he could allow himself to put forward such an exaggeration, we are at loss to imagine."

The British journalists, of course, cannot believe Dr. Gerstel, who reported (see vol. 13, p. 329) to an Austrian Medical Society that he had treated three hundred cases of cholera, of a most inveterate character, with a loss of only thirty-two, or about ten per cent. An offer was made to Dr. Gerstel to practise under the control of the District Superintendent, Dr. Nushard, in order to establish proofs of the success of the homœopathic treatment, which he declined.

Dr. Rutherford Russell, one of the editors of the *British Journal of Homœopathy*, says, in vol. 7, p. 179:

"We cannot help deprecating the boastful tone we *so often* hear assumed by homœopathists on this subject—the treatment of cholera. It would argue a singular callousness of feeling in any one who has had much experience in the disease, at all events as it appeared among us, in Edinburgh, not to be penetrated with a profound sense of the comparative importance of our art in arresting, or even greatly modifying this terrible plague. In assuming what may be thought a tone of too great despondency as to the results of homœopathic treatment, we (Dr. Russell) refer to the fully developed disease. In its first stage, if we are permitted to see it

at this time, much may be done to prevent its further development, and we cannot speak too strongly of the value of camphor; but in the stage of collapse, I have never seen any evidence of camphor being of service."

In the *British Journal of Homœopathy*, vol. 9, p. 693, we read: "We paid a visit to Dr. Tessier's hospital. He has one hundred beds; the wards are airy and high, and the hospital is well situated and served. He informed us that he had never met anything but uniform kindness and respect from the Central Bureau of Hospitals, although at various periods there have been medical men among them, and such is the case at present; not the slightest opposition has been offered to him in the change (from allopathic to homœopathic practice) that he has carried out in the medical treatment of his patients." This we know refers to the Hospital St. Marguerite, in which Tessier admits a loss of forty-eight or forty-nine per cent. of his cholera cases. (See Hempel's and Radde's Tessier on Cholera, p. 107.) The loss was only thirty-five to thirty-nine per cent. at our quarantine last season; of six hundred and twenty-two cases of cholera and over fifteen hundred of diarrhœa, two hundred and forty-two died. Drs. Stens and Gerstel would doubtless have reported twenty-one hundred and twenty-two cases of cholera with about ten per cent. loss.

In vol. 12, p. 698, we learn that: "Dr. Tessier has been transferred from St. Marguerite to the Hospital Beaujon, one of the best regulated hospitals in Paris. His wards, male and female, contain one hundred beds. We are sorry to learn that the cholera has, in his wards, as well as in other hospitals in Paris, shown so malignant a type. One great cause for the increased mortality in all the hospitals, is the decidedly contagious character the disease has manifested. It thus spreads

from bed to bed and attacks patients already suffering from serious diseases." I infer that the loss was still greater than in the Hospital St. Marguerite, and believe that Tessier has never published any account of it.

In old times it might have been supposed and assumed that the contagiousness of the cholera in Tessier's wards accounted for the increased mortality. But we almost all believe in the contagiousness of cholera now, and cases occurring in a well-appointed hospital, come earlier under treatment than under many other circumstances. The drawback that they have been or are sick with other diseases is somewhat counterbalanced by the facts that they do not have to be transported a great distance, are not half starved or racked with the pangs of exhaustion and debauchery, as many other cholera patients are, and that physicians, trained nurses, medicines, food, and every aid and comfort, are on the spot, for instant service, by night or day.

Besides, this loss from contagion occurred in 1854, when Dr. Budd, of Bristol, had established the great principles of disinfection (see page 100 of this treatise). Tessier, who is certainly an honest, earnest, and scientific homœopathist, neither knew how to prevent the infection, nor control it after it had commenced.

Dr. Fleischman, of Vienna, has had the largest hospital experience of the homœopathic treatment of cholera (see *Brit. Jour. of Hom.*, vol 14, p. 27); viz., twelve hundred and two cases, with seven hundred and ninety-three recoveries and four hundred and nine deaths. I know, from personal observation, that Fleischman's hospital is perfect in all its appointments. It is almost exquisite in its neatness, cleanliness, order. The consolations of religion are extended by the Sisters

of Charity, and only the better class of the poor are admitted. The worst and most depraved classes find no entrance there. Yet Fleischman's results were only five per cent. better than on board the hospital-ship Falcon in our harbor last year. Fleischman candidly says: "In the treatment of this disease, at least, as we have it in a hospital, even for us homœopathists much remains to wish for. Every remedy which has been recommended has been tried and tried again by me, but I have little to say in praise of any of them."

Dr. Chargé, of Marseilles, received from the French Government the order of the Legion of Honor, and from Pope Pius IX. that of Gregory the Great, for services rendered in the cholera of 1849, in general practice. In the *British Journal of Homœopathy* (vol. 15, p. 173) we read: "In 1854 he was applied to by the Mayor of Marseilles to take charge of two cholera wards in the Hotel Dieu. All patients were to be sent on alternate days to the homœopathic and allopathic wards. It is true that Dr. Chargé resigned his trust after three reception days; it is also true that during those three days twenty-six patients were received and twenty-one died. Dr. Chargé complained that he had too few nurses allowed; that there was a great want of bed clothing, flannels, etc.; that patients in other wards, when they took the cholera, as they often did, were transferred to the cholera wards; and, as this process of transfer was entirely in the hands of the allopathic medical officers, an opportunity was thereby afforded them of retaining in their own wards patients attacked by cholera on the day of the allopathic admission until the following day, when they might be thrust, in a dying state, into the homœopathic wards; and this, Dr. Chargé asserts, was frequently done."

This I cannot believe, but think the explanation is, that in 1849 Dr. Chargé was dealing with diarrhœa, cholera morbus, and cholerine, in private practice, and hence seemed very successful; while in 1854 he for the first time came in contact with true cholera, as it appears in general hospitals. Dr. Chargé certainly is not as able nor as scientific a physician as Tessier, and his success, we have seen, was not great, without any such imaginary unfair play.

Finally, Dr. Drysdale, one of the editors of the *British Journal of Homœopathy*, gives us, in vol. 8, some data by which we can form a prognosis under homœopathic treatment. He treated one hundred and seventy-five cases, of which forty-three or more were mild, with forty-five deaths. About twenty cases seen in the first stage could not be saved. The cure of real choleraic, rice-water, painless diarrhœa, he says, was by no means an easy matter. Of those with severe cramps, twenty-two out of forty-six died; with coma, ten out of fourteen; with agonizing pain from the region of the heart, through the back, all, nine in number, died; with red purging, four, or all died; of the severe cases, without cramps, eight out of fourteen; with grinding of the teeth, four out of eight; with greenish tint of complexion, four, or all, died; when purging was followed by cramps before vomiting, six out of nine died; all, (only two) died which commenced with fainting. If the vomiting began before the purging, four out of eleven died; if the purging preceded the vomiting, only six out of twenty-six proved fatal; with delirium, only four out of eleven died; with vomiting in gushes, only four out of ten; with hiccup, only two out of twelve; with epigastric pain, six out of twenty-four; with abdominal pain, six out of thirty-

six; with moderate cramps, three out of nineteen; and all those which commenced with colic recovered.

In the *consecutive fever*, of nine with coma, six died; with delirium, only two out of eight; with slow pulse, four out of twelve; with quick pulse, two out of four; with suppressed urine, two out of five; with restlessness, six out of sixteen; with vomiting, three out of thirteen; with purging, six out of thirteen; with grinding of the teeth, three out of six; with sighing respiration, six out of ten; with sleeplessness, all, four in number, recovered; with headache, four out of six.

It is evident from all that has gone before, that many cases recover under all kinds of treatment, and under no treatment; and that many die under all varieties of treatment.